**Divisibility Rules Worksheet**

*The divisibility rules make math easier.* Did you ever wonder how people could tell if something was divisible by a number just by looking at it? These rules are how they do it. Memorize a few simple rules and simplifying fractions and prime factorization will be so much easier.

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| --- | --- | --- |
| **Number** | **Divisibility Rule** | **Example** |
| Two (2) | A number is divisible by two if it is **even**. Another way to say a number is even is to say it ends in 0, 2, 4, 6 or 8. | 642 is divisible by two because it ends in a two, which makes it an even number |
| Three (3) | A number is divisible by there if the **sum of the digits adds up to a multiple of three** (3, 6, 9, 12, 15…). | 423 is divisible by three because 4 + 2 + 3 = 9. Since nine is a multiple of three (or is divisible by three), then 423 is divisible by three |
| Four (4) | A number is divisible by four if it is even and **can be divided by two twice**. Or check and see if the **last two numbers are divisible by 4**. | 128 is divisible by four because half of it is 64 and 64 is still divisible by two |
| Five (5) | A number is divisible by five if it **ends in a five or a zero.** | 435 is divisible by five because it ends in a five |
| Six (6) | A number is divisible by six if it is **divisible by both two and three.** | 222 is divisible by six, because it is even, so it is divisible by two and its digits add up to six, which makes it divisible by three |
| Eight (8) | A number is divisible by eight if it is even and **can be divided by two three times**. Or check and see if the **last three numbers are divisible by 8**. | 144 is divisible by eight because half of it is 72 and half of 72 is 36 and 36 is still divisible by two |
| Nine (9) | A number is divisible by nine if the **sum of the digits adds up to a multiple of nine** (9, 18, 27, 36…). This rule is similar to the divisibility rule for three. | 9243 is divisible by nine because the sum of the digits adds up to eighteen, which is a multiple of nine. |
| Ten (10) | A number is divisible by ten if it **ends in a zero.** This rule is similar to the divisibility rule for five. | 730 is divisible by ten because it ends in zero. |

**Divisibility Rules Worksheet**

Use the divisibility rules to circle the answers.

|  |  |
| --- | --- |
| **Number** | **Divisible by:** |
| Example: 10 | **2**  3 4  **5** 6 9 **10** |
| 15 | 2 3 4 5 6 9 10 |
| 27 | 2 3 4 5 6 9 10 |
| 36 | 2 3 4 5 6 9 10 |
| 16 | 2 3 4 5 6 9 10 |
| 28 | 2 3 4 5 6 9 10 |
| 57 | 2 3 4 5 6 9 10 |
| 102 | 2 3 4 5 6 9 10 |
| 268 | 2 3 4 5 6 9 10 |
| 4518 | 2 3 4 5 6 9 10 |
| 93 | 2 3 4 5 6 9 10 |
| 144 | 2 3 4 5 6 9 10 |
| 256 | 2 3 4 5 6 9 10 |
| 75 | 2 3 4 5 6 9 10 |
| 450 | 2 3 4 5 6 9 10 |
| 70 | 2 3 4 5 6 9 10 |

**Worksheet - Rules of Divisibility**

**DO ALL WORK ON YOUR PAPER, PLEASE.**

**1. Are these numbers divisible by “3”? How do you know? Show proof.**

**(a) 457 (b) 8,391 (c) 79,284**

**2. In which cases is “4” a factor of the number? How do you know?**

**(a) 3,488 (b) 72,928 (c) 1,000,816**

**3. Make a table on your paper to show answers for this question.**

**2 3 4 5 6 9 10**

**Which numbers shown above can be evenly divided into:**

**(a) 4,128 (b) 5,816 (c) 42,198 (d) 52,987**

**(e) 10, 000 (f) 5,192,803 (g) 3,188,224 (h) 90,929,487**

**4. Use the rules of divisibility to reduce these fractions to lowest terms.**

**(a) 156 (b) 312 (c) 468 (d) 269**

**495 990 513 621**

**(e) 480 (f) 213 (g) 418 (h) 693**

**1 000 669 652 1 212**

**5. Without using a calculator, change the decimals into fractions. Then use the rules of divisibility to reduce the fractions to lowest terms.**

**(a) 0.426 (b) 0.0215 (c) 0.121 (d) 0.612 4**

**(e) 0.6250 (f) 0.435 (g) 0.105 (h) 4.009**

**(i) 4.999 (j) 6.642 (k) -1.6 (l) -0.189**

1. \_\_\_\_\_ is the factor of 50.

a. 10

b. 3

c. 7

d. 6

2. Sixth multiple of 11 is \_\_\_\_\_.

a. 55

b. 66

c. 77

d. 88

3. Which of them is a prime number?

a. 27

b. 21

c. 23

d. 25

4. Which of them is a composite number?

a. 23

b. 29

c. 31

d. 33

5. \_\_\_\_\_ is a factor of every number.

a. 1

b. 2

c. 3

d. 4

6. The number of multiples of a given number is

a. 1

b. 10

c. 100

d. infinite

7. The only even prime number is

a. 2

b. 4

c. 6

d. 8

8. The smallest composite number is

a. 4

b. 1

c. 9

d. 6

9. The smallest odd composite number is

a. 5

b. 15

c. 9

d. 3

10. Two numbers having only 1 as a common factor are called \_\_\_\_\_\_\_\_ numbers.

a. co-prime numbers

b. twin prime numbers

c. composite numbers

d. prime numbers.

**Fill in the blanks:**

11. Every multiple of a given number is greater than or equal to that \_\_\_\_\_\_\_\_.

12. The number \_\_\_\_\_ is the smallest prime number and is even.

13. GCF of 12 and 16 is \_\_\_\_\_.

14. First three multiples of 10 are \_\_\_\_\_\_\_\_.

**Answer the following:**

15. Find the least number which when divided by 12, 16, 24 and 36 leaves a remainder 7

in each case.

16. In a morning walk, three persons step off together. Their steps measure 80 cm, 85 cm

and 90 cm respectively. What is the minimum distance each should walk so that all

can cover the same distance in complete steps?

17. Find the LCM of the following numbers:

a. 9 and 4

b. 6 and 5

**Choose correct option in questions 1 to 11.**

18. \_\_\_\_\_ is the factor of 81.

a. 9

b. 8

c. 7

d. 5

19. Fifth multiple of 9 is \_\_\_\_\_.

a. 54

b. 45

c. 36

d. 27

20. Which of them is not a composite number?

a. 14

b. 16

c. 8

d. 13

21. Two numbers having only \_\_\_\_\_ as a common factor are called co-prime numbers.

a. 1

b. 2

c. 3

d. 4

22. The HCF of two consecutive numbers is

a. 0

b. 1

c. 2

d. 3

23. The HCF of two consecutive odd numbers is

a. 3

b. 2

c. 1

d. 0

24. The HCF of two consecutive even numbers is

a. 0

b. 1

c. 2

d. 3

25. Find the multiples of 7 which is greater than 56 but less than 77.

26. Find the HCF of 70, 105, 175.

27. Determine the smallest three digit number which is exactly divisible by 6, 8 and 12.

28. Find the prime factorization of 980.

29. The length, breadth and height of a room are 825cm, 675cm and 450cm respectively. Find the longest tape which can measure the three dimensions of the room exactly.

30. Express 53 as the sum of three odd primes.

24. Write seven consecutive composite numbers less than 100 so that there is no prime number between them.

25. The HCF of two co-prime numbers is

a. 0

b. 3

c. 2

d. 1

26. The LCM of two consecutive numbers is

a. their sum

b. their product

c. their difference

d. none of these

27. The LCM of two co-prime numbers is

a. their sum

b. their product

c. their difference

d. none of these

**Fill in the blanks:**

12. If two given numbers are divisible by a number, then their \_\_\_\_\_\_\_\_\_ are also divisible

by that number.

13. A number is divisible by \_\_\_\_\_\_, if it is divisible by both 3 and 6.

14. HCF of 8 and 12 is \_\_\_\_\_.

15. First two multiples of 9 are \_\_\_\_\_\_\_\_.

**Answer the following:**

16. Sort out even and odd numbers: 43, 48, 61, 69, 80, 155, 332, 264, 89, 19, 76, 125, 64

17. Match the items in column I and column II.

COLUMN –I COLUMN –II

(i)45 (A) multiple of 3

(ii)15 (B) factor of 40

(iii)24 (C) multiple of 7

(iv)20 (D) factor of 30

(v)35 (E) multiple of 9